

**Amendments to the Claims:**

Please cancel claims 1-31 without prejudice or disclaimer of the subject matter contained therein.

32. (New) A *Bacillus* spore which is genetically modified with genetic code  
2 comprising at least one genetic construct encoding a therapeutically active compound  
and a targeting sequence or a vegetative cell protein for use in oral administration for  
4 therapeutic treatment.

33. (New) A spore as claimed in claim 32, wherein the therapeutically active  
2 compound is an antigen or a medicament or a precursor to an antigen or a medicament.

34. (New) A spore as claimed in claim 32, wherein the gene construct is a  
2 chimeric gene.

35. (New) A spore as claimed in claim 33, wherein the gene construct is a  
2 chimeric gene.

36. (New) A spore as claimed in claim 32, wherein the genetic modification is  
2 accomplished by transformation of a mother cell using a vector containing the gene  
construct and then inducing the mother cell to produce the spores.

37. (New) A spore as claimed in claim 32, wherein the gene construct is under  
2 the control of one or more of, each or independently, an inducible promoter, a promoter  
or a strong promoter or modified promoter.

38. (New) A spore as claimed in claim 37, wherein the gene construct is under  
2 the control of one or more of, each or independently, an inducible promoter, a promoter  
or a strong promoter or modified promoter.

39. (New) A spore as claimed in claim 37, wherein the gene construct has an  
2 enhancer element or an upstream activator sequence associated with it.

40. (New) A spore as claimed in claim 32, wherein the construct comprises an  
2 inducible expression system.

41. (New) A spore as claimed in claim 37, wherein the construct comprises an  
2 inducible expression system.

42. (New) A spore as claimed in claim 32, wherein the spore germinates in the  
2 duodenum and/or the jejunum of an intestinal tract of a human or animal body.

43. (New) A spore as claimed in claim 32, wherein the therapeutically active  
2 compound is an antigen which, in use, is adapted to elicit an immune response.

44. (New) A spore as claimed in claim 43, wherein the antigen is at least a  
2 fragment of tetanus toxin fragment C or labile toxin B sub unit.

45. (New) A spore as claimed in claim 37, wherein the protein is a protein  
2 that is expressed in the cell barrier.

46. (New) A spore as claimed in claim 45, wherein the protein is a protein  
2 that is expressed in the cell barrier.

47. (New) A spore as claimed in claim 37, wherein the protein is expressed all  
2 the time in a vegetative cell.

48. (New) A spore as claimed in claim 47, wherein the protein is expressed all  
2 the time in a vegetative cell.

49. (New) A spore as claimed in claim 47, wherein the protein is OppA or  
2 rrnO.

50. (New) A spore as claimed in claim 32, wherein the protein is expressed  
2 intermittently in a vegetative cell.

51. (New) A spore as claimed in claim 46, wherein the protein is expressed  
2 intermittently in a vegetative cell.

52. (New) A spore as claimed in claim 32, wherein the protein is a soluble  
2 cytoplasmic vegetative cell protein.

53. (New) A spore as claimed in claim 44, wherein the protein is a soluble  
2 cytoplasmic vegetative cell protein.

54. (New) A spore as claimed in claim 52, wherein the protein is rrnO.

55. (New) A spore as claimed in claim 52, wherein the genetic construct of  
2 the soluble cytoplasmic protein wholly or partially comprises a signal sequence.

56. (New) A spore as claimed in claim 54, wherein the genetic construct of  
2 the soluble cytoplasmic protein wholly or partially comprises a signal sequence.

57. (New) A spore as claimed in claim 32, wherein the signal sequence is  
2 adapted to target the therapeutically active compound to a specific part of the vegetative  
cell.

58. (New) A spore as claimed in claim 44, wherein the signal sequence is  
2 adapted to target the therapeutically active compound to a specific part of the vegetative  
cell.

59. (New) A spore as claimed in claim 57, wherein the signal sequence directs  
2 the therapeutically active compound for secretion (preferably active secretion, more  
preferably Type I, Type II or Type III secretion), or for post-translational processing by  
4 a vegetative cell (preferably glycosylation).

60. (New) A spore as claimed in claim 32, wherein the therapeutically active  
2 compound is an antigen precursor which is one or more enzymes capable of  
transforming a biological precursors, such that upon germination said one or more  
4 enzymes are expressed and synthesise one or more antigens by transformation of a said  
biological precursor.

61. (New) A spore as claimed in claim 59, wherein the therapeutically active  
2 compound is an antigen precursor which is one or more enzymes capable of  
transforming a biological precursors, such that upon germination said one or more  
4 enzymes are expressed and synthesise one or more antigens by transformation of a said  
biological precursor.

62. (New) A spore as claimed in claim 60, wherein the biological precursor is  
2 a hormone, a steroid hormone, a painkiller or a pro-drug.

63. (New) A spore as claimed in claim 32, wherein the therapeutically active  
2 compound is a medicament which is a protein, a vaccine or an endorphin.

64. (New) A spore as claimed in claim 59, wherein the therapeutically active  
2 compound is a medicament which is a protein, a vaccine or an endorphin.

65. (New) A spore as defined in claim 32, wherein it is for use in treatment of  
2 a medical condition, preferably the medical condition is inflammation, pain, a hormonal  
imbalance and/or an intestinal disorder.

66. (New) A spore as defined in claim 64, wherein it is for use in treatment of  
2 a medical condition, preferably the medical condition is inflammation, pain, a hormonal  
imbalance and/or an intestinal disorder.

67. (New) A composition comprising at least two different spores as defined  
2 in claim 32, wherein said at least two different spores express at least two different  
therapeutically active compounds.

68. (New) A composition as defined in claim 67, wherein the composition  
2 further comprises a pharmaceutically acceptable excipient or carrier.

69. (New) A composition comprising a spore as defined in claim 32 in  
2 association with a pharmaceutically acceptable excipient or carrier.

70. (New) A composition comprising a spore as defined in claim 65 in  
2 association with a pharmaceutically acceptable excipient or carrier.

71. (New) A composition as defined in claim 67 for use in treatment of a  
2 medical condition, preferably the medical condition is inflammation, pain, a hormonal  
imbalance and/or an intestinal disorder.

72. (New) A composition as defined in claim 68 for use in treatment of a  
2 medical condition, preferably the medical condition is inflammation, pain, a hormonal  
imbalance and/or an intestinal disorder.

73. (New) A composition as defined in claim 69 for use in treatment of a  
2 medical condition, preferably the medical condition is inflammation, pain, a hormonal  
imbalance and/or an intestinal disorder.

74. (New) Use of a spore as defined in claim 32 in the manufacture of a  
2 medicament for use in the treatment of a medical condition, preferably the medical  
condition is inflammation, pain, a hormonal imbalance and/or an intestinal disorder.

75. (New) A method of medical treatment, which method comprises the steps  
2 of  
a) administering a spore as defined in claim 32 to a human or animal in need  
4 of medical treatment;  
b) said spore germinating into a vegetative cell in the intestinal tract;  
6 c) said vegetative cell expressing a therapeutically active compound for use  
in the medical treatment.

76. (New) A method of medical treatment, which method comprises the steps

2 of

d) administering a spore as defined in claim 65 to a human or animal in need  
4 of medical treatment;

e) said spore germinating into a vegetative cell in the intestinal tract;

6 f) said vegetative cell expressing a therapeutically active compound for use  
in the medical treatment.

77. (New) A method as claimed in claim 75, wherein the spore is administered orally,

2 intra-nasally or rectally.

78. (New) A method as claimed in claim 76, wherein the spore is administered orally,

2 intra-nasally or rectally.